CLAIMS:

1. A method of converting a first image with a first resolution into a second image with a second resolution, the first resolution being different from the second resolution, the method comprising:

- pixel value insertion; and
- convolution based on a non-separable multi-dimensional kernel which comprises a plurality of coefficients being equal to zero, a first portion of the plurality of coefficients being disposed on a first diagonal line through the non-separable multi-dimensional kernel and a second portion of the plurality of coefficients being disposed on a second diagonal line through the non-separable multi-dimensional kernel, the second diagonal line being perpendicular to the first diagonal line.

2. A method as claimed in claim 1, whereby the pixel value insertion comprises replication of pixel values of the first image.

3. A method as claimed in claim 1, whereby the pixel value insertion comprises insertion of pixels with values equal to zero and the convolution is performed with a second kernel which is based on a further convolution of the non-separable multi-dimensional kernel with a third kernel.

4. A method as claimed in claim 2, whereby the non-separable multi-dimensional kernel comprises the plurality of coefficients being equal to zero and a plurality of coefficients being unequal to zero, which are disposed as:

$$\begin{bmatrix} 0 & c & 0 \\ c & 0 & c \\ 0 & c & 0 \end{bmatrix}$$, with c being unequal to zero.

5. A method as claimed in claim 2, whereby the non-separable multi-dimensional kernel comprises the plurality of coefficients being equal to zero and a plurality of coefficients being unequal to zero, which are disposed as:

$$\begin{bmatrix} 0 & 0 & c & 0 & 0 \\ 0 & c & 0 & c & 0 \\ c & 0 & c & 0 & c \\ 0 & c & 0 & c & 0 \\ 0 & 0 & c & 0 & 0 \end{bmatrix}$$, with c being unequal to zero.

6. A method as claimed in claim 2, whereby the non-separable multi-dimensional kernel comprises the plurality of coefficients being equal to zero and a plurality of coefficients being unequal to zero, which are disposed as:

$$\begin{bmatrix} 0 & 0 & 0 & c & 0 & 0 & 0 \\ 0 & 0 & c & 0 & c & 0 & 0 \\ 0 & c & 0 & c & 0 & c & 0 \\ c & 0 & c & 0 & c & 0 & c \\ 0 & c & 0 & c & 0 & c & 0 \\ 0 & 0 & c & 0 & c & 0 & 0 \\ 0 & 0 & 0 & c & 0 & 0 & 0 \end{bmatrix}$$, with c being unequal to zero.

7. A method as claimed in claim 3, whereby further coefficients of the second kernel are disposed as:

$$\begin{bmatrix} 0 & d & d & 0 \\ d & e & e & d \\ d & e & e & d \\ 0 & d & d & 0 \end{bmatrix}$$, with $e = 2d$

8. A method as claimed in claim 1, further comprising sub-sampling.

9. An image conversion unit for converting a first image with a first resolution into a second image with a second resolution, the first resolution being different from the second resolution, the image conversion unit comprising:

- a pixel value insertion unit for insertion of pixel values; and
- a convolution unit for a convolution based on a non-separable multi-dimensional kernel which comprises a plurality of coefficients being equal to zero, a first portion of the plurality of coefficients being disposed on a first diagonal line through the non-separable multi-dimensional kernel and a second portion of the plurality of coefficients being

disposed on a second diagonal line through the non-separable multi-dimensional kernel, the second diagonal line being perpendicular to the first diagonal line.

10. An image processing apparatus, comprising:

- receiving means for receiving a signal corresponding to a first image; and
- an image conversion unit converting the first image with a first resolution into a second image with a second resolution, as claimed in claim 1.

11. An image processing apparatus as claimed in claim 10, characterized in further comprising a display device for displaying the second image.

12. An image processing apparatus as claimed in claim 14, characterized in that it is a TV.

13. A computer program product to be loaded by a computer arrangement, comprising instructions to convert a first image with a first resolution into a second image with a second resolution, the first resolution being different from the second resolution, the computer arrangement comprising processing means and a memory, the computer program product, after being loaded, providing said processing means with the capability to carry out:

- pixel value insertion; and
- convolution based on a non-separable multi-dimensional kernel which comprises a plurality of coefficients being equal to zero, a first portion of the plurality of coefficients being disposed on a first diagonal line through the non-separable multi-dimensional kernel and a second portion of the plurality of coefficients being disposed on a second diagonal line through the non-separable multi-dimensional kernel, the second diagonal line being perpendicular to the first diagonal line.